/5 cont./

*532 Then the next stage
of production can begin. In the case of female figures the apron
[287] is now tied on; a piece of tree bast is cut to the necessary length,
and the inner layer is pulled off and made pliable by being pulled
through the mouth several times. The way it is fastened as an
[314] apron is shown on Fig. 24 /see p. 48 /. Then the hair is put on.
Black resin is warmed on a block of wood, rolled out on a gourd
or on the thigh into a long roll, and this is then pressed tightly on
the head. A thick layer of resin is put on the back of the head.
If the resin becomes hard too quickly, it is warmed up again with
[386] the block of wood. Only now does the painting with black genipa
and red urucú dye follow. A slender bamboo rod is dipped into
the paint and drawn along the indented lines. Larger red areas
of color are also put on with the index finger.

/6/ The adornment characteristic of the different sexes and
ages is usually put on as well. Almost all figures are painted; I
[302] do not know whether the patterns correspond to the patterns of
body painting customary otherwise; in any case I never saw patterns
of that kind on the bodies of the people themselves, though it must
be remarked that I very seldom encountered patterning on the body
at all.

Ear rods are represented here and there by fine rods (Figs.
17, 23 /see p.48 /); ear rosettes are made very small from feathers
(Fig. 16 a and b /see p48 /). Long narrow strips of cane serve
the men as lip plugs (Fig. 18 /see p.48 /).

Necklaces are either painted on (Fig. 19b /see p. 48 /) or
reproduced by beads (Fig. 16 /see p. 48 /) or, in the majority of
cases, by cotton threads, which either fit tightly (Figs. 18, 22 /see
p. 48 /) or hang down (Fig. 21 /see p.48 /, Fig. 35 /see p.48 /).

Neck tassels for the children are formed in wax; they lie
tightly against the back of the figures (Figs. 20, 21 /see p.48 /).

Cuffs are sometimes attached to the extensions of the wax
hair-roll by attaching two fine rolls of wax, with the space between
them painted red (Figs. 17, 18, 20, 21, 22, 35).

Arm tassels of string are shown in Fig. 22.

Calf bands are represented by two fine rolls of wax, with the
space between them only rarely painted red (Figs. 18, 22, 23).

/8 cont./

*532 One might hesitate over the fact that breasts are then also made on male figures. It is true that this would be a fairly serious objection, fot it cannot be assumed without further ado that the Indians add body parts which after all are not present. If, however, they are interpreted on the male figures as arms, then logically this must also be done in the case of the female figures; for, again, it cannot be assumed that the Indians in the one case represent arms and in the other case breasts in the same way. But then one would wonder why the Indians did not attach the female breasts, which after all constitute such a striking feature, but instead put arms in this spot, and then on a large number of figures further added arms of wax. This assumption is surely to be rejected. Thus there remains only the view that on the female figures it is certainly a matter of breasts, and that analogously the protuberances on the male figures also represent them. If one then considers the whole schematic arrangement of the figures and takes into consideration the fact that for many Indian men the breasts were slightly convex, then it will no longer be surprising to find the transference of a female organ to male figures.

The hair, as described above, is formed by a roll which is laid around the face. The back of the head as far down as the shoulders, sometimes even the back as far down as the small of
● [3/4] the back, is covered with a layer of resin (Fig. 20 /see p. 48 /). On the sides the hair roll goes as far as the chin (Figs. 19, 28 /see pp. 48 & 49/, Fig. 30 /see p. 49 /), to under the arms and breasts (almost only on female figures [Figs. 24, 25 /see p. 48 /, Figs. 27, 32, 34 /see p. 49 /]), or down to the hips (Figs. 17, 20, 21, 22, 26 /see p. 48 /, Figs. 33, 35 /see p. 49 /). In the latter case a small topknot is usually made on top, from which an indented, red-dyed part comes down to the forehead (Fig. 17 /see p. 48/). The lower ends of the roll represent the arms; they often wear cuffs. On both of the other kinds the part and the topknot are seldom found. Male figures with a short coiffure sometimes have at the back /9/ braids made out of a roll of wax

/267 cont./

411 The arrows with the bone point set on them are used ex-
239 clusively for fishing. The bone point is set on in such a way
239 that its rear end projects laterally and thus forms a small barb.
[284] It is four to six centimeters long and is fastened to the wooden
[314] stem by a fine bast winding and a coating of black resin (Ill. 115). On my specimens this bone point is round throughout, whereas Ehrenreich brought back a second type of such arrow with a flat bone point (Berlin 4008) (1) and a third type with a tubular

1. I obtained arrows with flat bone points only from the Kayapó.

bone set on as a point (Berlin 4009). The stem in the case of these arrows is 40-50 centimeters long, sometimes natural color or painted red, but mostly painted black; the shaft has a length of 100-200 centimeters. The one reproduced in Ill. 117 was probably to be used as a point for an arrow with a monkey bone stuck on it (ūhĭdŏ, dūrŏlēnĭdĭ).

A single arrow bears, instead of the bone point, one made of a ray spine (Ill. 116); it comes from the village on the Tapirapé mouth.

411 The stem of the point has no other ornamentation than the
314 black or red painting. It is inserted in the shaft and made fast
[531] in it with resin. In order to detach it from the broken shaft and set it on a new one, the tube is warmed over the fire until the resin melts and the stem can be pulled out. The shaft end is cut to fit for the insertion of the stem, so that the transition into the stem is gradual. When the stem is set into the shaft, the latter often splits; the cracks are glued over with black resin.

411 A black, narrow strip of embira is wound over the place
284 of insertion; it is fastened to the shaft with light-colored resin.
[314] This winding (dŏdĕ) is done in different ways; it either covers stem and shaft in a continuous course, or, separated from the short attachment-winding, there is a longer shaft winding whose intermediate space is sometimes bridged by spirally wound or
[531] crossed winding. At this place one arrow will bear spiral incised ornamentation (ŭŏhūlădĭ, ĭlădĭ), another a black and yellow plaiting. A three-part attachment-winding is very rare (Ill. 118).

/267 cont./

411 [804] The shaft (b'dõlĕ) consists of taquara cane. This cane seems to occur south of the Rio Tapirapé only in the region of the south horde. At the southern end of Bananal Island I came across a village that was on the move southward in order to obtain taquara for their arrows near Leopoldina. The shaft is 0.8-1.0 centimeters thick on the average; its length fluctuates, depending on the type of point (see above). I never saw shaft decorations.

411 [237] The feathering, on the average, is 17-22 centimeters long. Of all my arrows there are only two exceptions, one of which is 15 centimeters long, the other 31. The feathering is attached directly to the lower end of the shaft. Ehrenreich reports that the [114] feathered end is often set into the shaft separately. His assumption that in this case the arrows had been repaired /268/ is confirmed by a specimen in my collection which was thus restored (Ill. 119a).

[284] Great care is used in the construction of the feathering. It consists of two feathers standing opposite each other, the upper tips of which are held fast by the notch-lashing, and the inner ● [314] vanes of which are clipped short. At the place where the quills are supposed to be fastened, the shaft is rubbed with resin; the halved quill ends are pressed on it, whereupon the vanes are set vertically to the shaft and /Ills. 118 and 119 appear here/ are given a turn (an eighth to a quarter of the circumference of the [284] shaft) (Ill. 119b). Then the quill ends are tightly wound with [283] black cotton thread (ãsõdĕbĕ), whereupon the outer vanes are cut to shape (Ill. 119c). In former times, the feathers were given the desired shape by singeing, but since the introduction of iron shears they are cut. Not until the feathering is finished is the point inserted.

A different kind of feathering (spiral winding through the two halved /269/ /Ill. 120 appears here/ /270/ feathers) is found in the case of a few children's arrows of the north horde (see "Children's Toys" /see p. 241/). It is not yet certain whether this is an old feathering that has now become lost to adults.

/281 cont./

824 Most of all, the Indian exploits the vegetable kingdom, and here he has also gone over to the cultivation of plants useful to him. He already has at his disposal, of course, many useful wild plants in the way of trees (leaf trees, palms), shrubs, varieties of cane, etc.

Almost all parts of the plants are utilized, in each case, of course, only certain ones: wood, bark, leaves, stem, bast, [241] blossom. Of plants whose fruits are used technically, the following are planted: /282/ gourds, cotton, urucũ. The gluing ma- ● [314] terials, with the exception of wax, are taken exclusively from plant resins.

324 412 In the following, the processing and utilization of the individual raw materials will be described.

D. Stones are used above all as stone axes. The material for them is chiefly granular diabase or diorite. Nothing is known about how they are made. At the present time they serve only as striking stones for the preparation of bark cloth and for cracking nuts. Apparently they all come from the Rio Tapirapé, as well as from the mountains north of it, and are perhaps not even made by the Karajá themselves, but acquired from the Tapirapé through trade. In shape, there are flat axes and axes with a shaft groove (Ills. 100-102). As a nutcracker I found a stone apparatus consisting of stone base and small hammer, which, in shape, is quite peculiarly suited for this. Through long use a smooth, round hollow was produced in the slightly convex striking surface of the hammer (Ill. 99). Such stones are said to come from the cachoeira /cataract/ near St. Maria. The small stone knives which are used for tattooing are made anew each time out of the flint rubble of the sandbanks by splitting the flint with a stone or iron ax and using the sharpest splinters without any further treatment (Ill. 52b). Nothing is known about the making of the long stone lip plugs (Ill. 62). Allegedly they are struck into shape with [439] stones. The Karajá do not make them themselves, but barter for them with the Tapirapé.

/299 cont./

237 284 [314] Fastening of the feathers to the underlayer. Down feathers are generally glued on, and, to be sure, with light resin. All other feathers are fastened differently according to the underlayer.

On rods. Long feathers are either stuck on with the quill on top of the wooden rod (feather wheels) or laid with the halved quill flat on the wooden rod, in which case quill and rod are joined at several places with fine bast (Ill. 154). Concerning arrow feathering, see above under "Weapons" /see pp. 183 ff./.

In order to fasten small little feathers, wide strips of cane are wound spirally with fine thread, whereby the small feathers are tied in in one direction (feather rod; Ill. 155a). Round rods are likewise spirally wound, and while doing so feathers are continuously bound in on all sides /300/ (rosette rod; Ill. 155b). The same principle is applied in the case of ear rosettes and ear tulips, except that there the winding is very tight and the feathers stand very close together; the latter are also spread out by means of the shell disk pressed on top of them; the same is true of the small rosettes which are knotted into the feather caps, except that here everything is done on the smallest scale.

In the fastening to threads, we must distinguish between the feathers standing vertically and the hanging /Ills. 154-156 appear here/ feathers. In order to fasten feathers standing vertically to a string, the quills are bent at the bottom around a thicker string and then the bent end and the quill are wound with a cotton thread. There are differences only in the manner of winding. Either each feather is fastened separately (as in the feather caps, Ill. 77), or one thread joins the feathers continuously in that it is either wound once around each feather or is tied around each feather /301/ (Ill. 156), or, finally, in that the thread is wrapped or tied continuously twice around each feather (Ill. 154).

Hanging feathers are fastened to the thread in the same way as the upright feathers; the mutual joining of the individual feathers is achieved throughout by a continuous thread that is wound around the feathers.

/304 cont./

386 824 M. Coloring substances and adhesives. By way of coloring substances, besides urucú red (Bixa orellana) and genipap black (Genipa brasilensis), which are used essentially as body colors, only black and white occur as technical colors. The white earth (mănăŭlă = white stone) serves as white; it is pounded and used above all for painting the bow-wood winding. It is also used for making spinning whorls. Black loam (zŏŭblūlŭ) is used for black coloring. Embira is colored with it by heaping wet black loam over the bast and letting it lie this way for a night. Cotton is dipped in boiling water and then drawn through the loam standing nearby in a pot. This is repeated several times until the threads are sufficiently blackened. Cotton is colored red with urucú oil color only after the completion of the object concerned. Concerning the storing and the trade form of urucú red, see p. 100 and Ill. 40 /see p. 103/.

237 The universal adhesive substance is beeswax (tăbōlă) that is stored in spherical form and is offered to passing travelers in bulk as material for boat calking. Jatobá resin (kūwăŏ), a light, transparent, hard resin, is also used a great deal. From it the red, lacquer-like resin (daûmālĕ), such as is used to decorate the feathered end of the arrows, is made in the following manner: the resin is softened in a pot over the hearth fire, urucú color is poured in, the two are mixed, and the whole is allowed to stiffen. The black, lacquer-like resin (dŏwŏdālă), which serves the same purpose, seems to be made in a similar manner by adding black coloring. Both kinds are stored in large lumps which seldom have a definite shape. For fastening the mother-of-pearl eyes on the stools, the little down feathers on the bodies of children etc., a soft, yellow resin is used (kōōdĭ), which is stored in a piece of palm leaf folded together.

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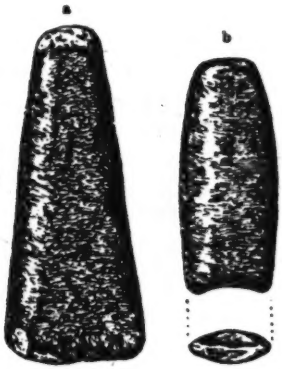
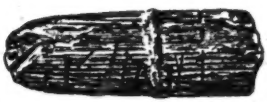
Ill. 200.
Gourd for carrying water.

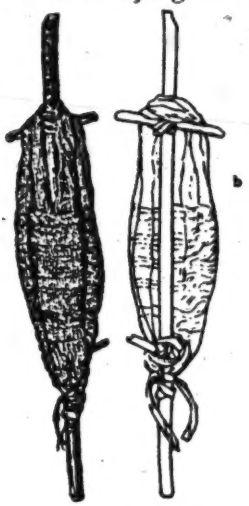


Ill. 201 a, b.
Stone ax.

Ill. 202.
Cotton ball in bast covering.



Ill. 205.
Black resin.



Ill. 203 a, b.
Plaiting apparatus for girls' belt.
b) = rear view.

Ill. 204.
Crochet needle.

Ill. 206 a-c.
Child's bow with arrows.

/364 cont./

286 184 The making of the net coverings corresponds to that of the Karajá, and the apparatus is just as primitive as it is there. A small apparatus is used for plaiting the girls' belts: on a long stick, at some distance from either end, a short cross-stick is tied. Around these the warp is then wound (Ill. 203 a, b). The weft is intertwined by hand.

Here, too, crocheting is done with iron crochet needles [531] (dešídūnă). The handle is only rarely decorated and then only simply wound with red cotton thread (Ill. 204).

386 ●314 184 Coloring and adhesive substances are identical with those of the Karajá. I obtained red dòmãlẽ and black resin, zõbădãla, both in pieces 12-15.5 centimeters long, 5.5-6 centimeters wide, and 2 centimeters thick, and convex on one side (Ill. 205). These are pressed in rod sieves, the texture of which is sometimes still recognizable on the surface.

524 531

Ill. 207 a-d.
Toy dishes.
a, b) Bowls, c) painted vessel, d) its design.

237 Feathers, for storing, are either tied in small bundles or, as among the Karajá, arranged as wings.

524 10. As children's toys, I brought back: small bows and arrows, of which the bows are very crudely made, whereas the arrows either consist of the pointed shaft, on which, in front, a small /365/ nut with lateral hole is sometimes pushed (Ill. 206 a-c), or exhibit a round, inserted wooden point. The feathering is the ordinary bunch-feathering. I did not see any imitations of guns [531] here. As toy clay dishes I acquired two small bowls (wădjĭwĭlĭŏlĕ) and, in Schischá, a bowl and a vessel painted red on the outside, which is an imitation of a gourd spoon (207 a-d).

9:Gow-Smith T-5 (no date) 1925
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Cayapo SP11

skilfully feathered at the end. The arrowheads are fastened to eighteen-inch foreshafts of hard-wood tipped with bone, fitted in three- to four-foot bamboo shafts and bound in place with the strong cord that the native women spin from wild cotton. The binding is firmly cemented with a kind of resin. Long needle-like arrows tipped with hard-wood are for shooting birds; the sharp bamboo tips curved hollowly are for deer and jaguars, for they permit the wounded animal

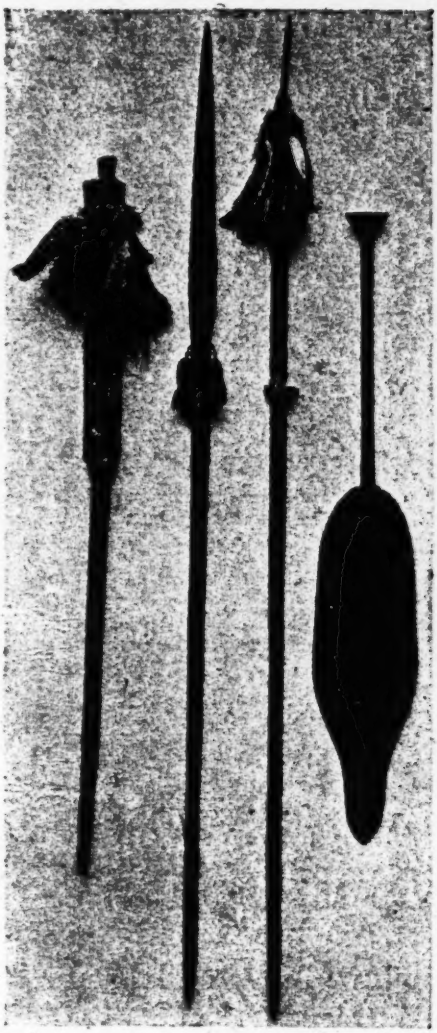

FIG. 98.—Caraja objects (grave-post, two spears, and a paddle)